

農業環境技術研究所昆虫標本館所蔵のハモグリバエ科(7新種の記載を含む)

誌名	農業環境技術研究所報告
ISSN	09119450
著者	笹川, 満廣 松村, 雄
巻/号	16号
掲載ページ	p. 1-17
発行年月	1998年3月

Agromyzidae (Diptera) in Insect Museum, National Institute of Agro-Environmental Sciences, with the description of seven new species

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(Received 24 July, 1997)

Synopsis

The agromyzid collection in the Museum consists of 3,500 specimens, representing 14 genera and 75 species. These include 7 new species: *Amauromyza clinopodii* SASAKAWA on *Clinopodium chinense grandiflorum* (Lamiaceae), *Calycomyza polygonicola* SASAK. on *Polygonum* sp. (Polygonaceae), *Liriomyza subflavopicta* SASAK. on the Apiaceae, *Phytomyza brevituba* SASAK. on *Angelica decursiva* (Apiaceae), *P. rubicola* SASAK. on *Rubus palmatus* (Rosaceae), *Chromatomyia actinidiae* SASAK. on *Actinidia arguta* (Actinidiaceae) and *Ophiomyia ozeana* SASAK. (host plant unknown), and also 7 species recorded for the first time in Japan. One new synonym and 2 new combinations are established.

The first collection of the Agromyzidae in the Insect Museum, Division of Entomology, National Institute of Agro-Environmental Sciences, Tsukuba, was done by ISITANI (National Agricultural Experiment Station, Nishigahara, Tokyo) in 1938 for an understanding of modern systematics and mining habits on the agricultural pests. As a result, he reported six barley and wheat leaf miners occurred in Tokyo, in which he first applied the scientific names of three species originally described from Europe: *Agromyza yanonis* MATSUMURA (as *Stomacrypeolus ambigua* FALLÉN), *Chromatomyia nigra* MEIGEN (as *Phytomyza nigra*) and *Cerodontha denticornis* PANZER, and two unidentified *Dizygomyza* species, which are identified with *Cerodontha (Poemyza) incisa* MEIGEN (= *Oscinis okazakii* MATSUMURA) and *C. lateralis* MACQUART, and one *Agromyza* species, with *A. albipennis* MEIGEN. He (1939) also insisted that Matsumura's *Phytomyza nigricornis*, commonest in agricultural field, should be identified with *P. atricornis* MEIGEN.

In later years, the agromyzid pests of economic plants were collected from various regions in Japan by KATO and FUKUHARA (National Institute of Agricultural Sciences, Nishigahara). KATO (1950) recorded the occurrence of an onion leaf miner, *Liriomyza chinensis* KATO (as *Dizygomyza cepae* HERING) in Japan, and illustrated nine species in "Iconographia Insectorum Japonicorum" (2nd ed., 1950): *Agromyza albipennis*, *A. ambigua yanonis* MATSUMURA, *A. oryzae* MUNAKATA and *A. phragmitidis* HENDEL, *Dizygomyza cepae* HERING, *Cero-*

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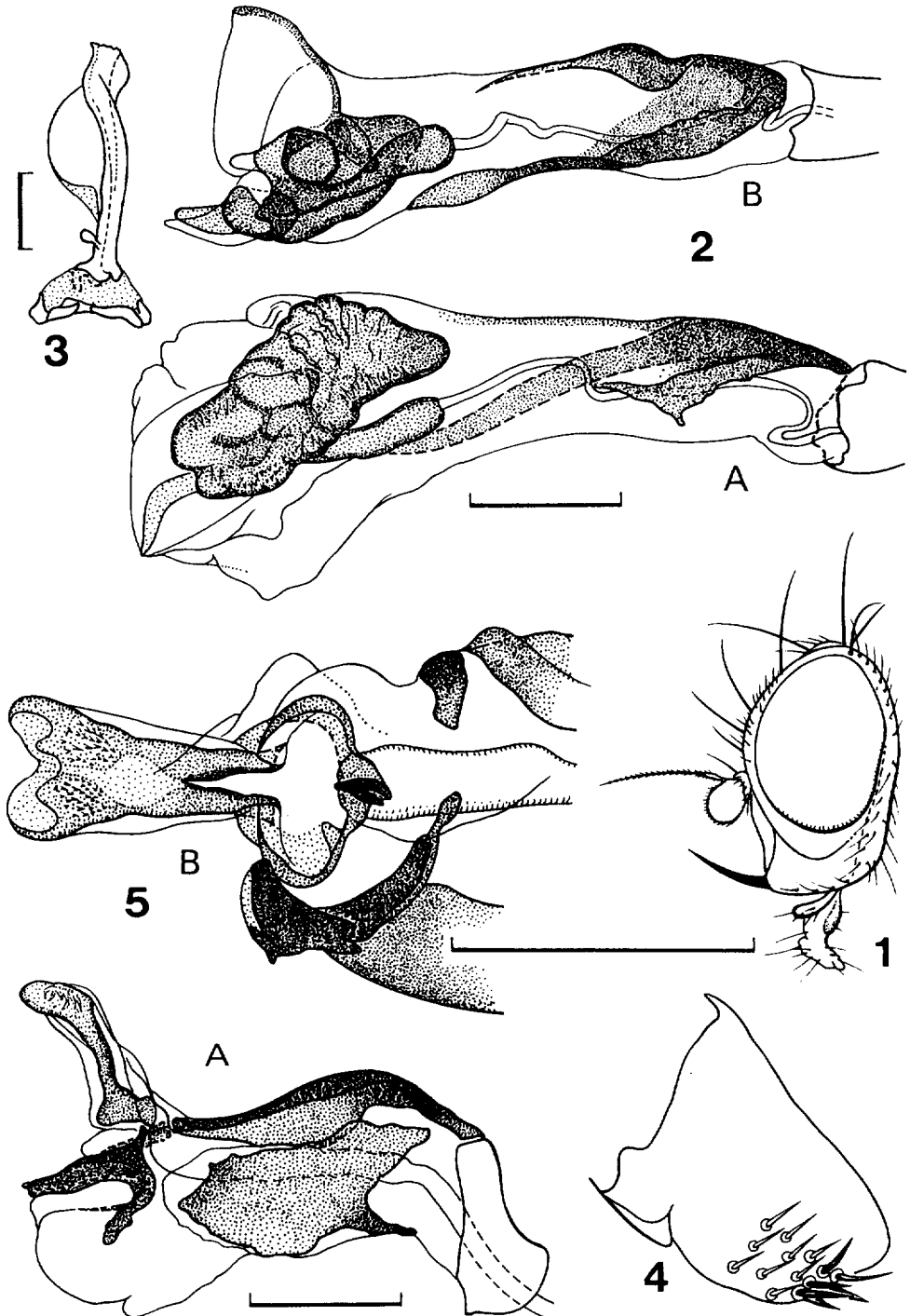
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projected, bearing 40-42 spines in five irregular rows along ventral margin and six setae along posterior margin ; cercus two-thirds as high as epandrium, densely setose on ventral apex ; hypandrium V-shaped, about half as long as phallapodeme, without distinct apodeme at base ; pregonite with two short setae ; phallus two-thirds length of phallapodeme ; phallophore broad, one-eighth length of phallapodeme, almost as long as phallic hood ; basiphallus with left sclerite distinctly longer than the right and two-thirds as long as the whole length of the phallus ; distiphallus striated on dorsolateral side and along ventral margin, spinulose internally ; ejaculatory apodeme expanded asymmetrically, 320 μ m long, 105 μ m in greatest width.

Length of body 2.7-3.0 (2.9 in holotype) mm, of wing 2.6-2.9 (2.7 in holotype) mm.

Female and *biology* unknown.

Holotype male, Kamitashiro~Shimotashiro, Oze, 18 July 1950, I. HATTORI. Paratypes: 2 males, same locality as in holotype, 17 & 18 July 1950, S. KATO & N. FUKUHARA.



Figs. 1-5. *Ophiomyia ozeana* n. sp. (1-3) and *Amauromyza* (*Amauromyza*) *clinopodii* n. sp. (4-5). 1, head, lateral view ; 2 & 5, phallus (A, lateral view ; B, ventral view) ; 3, ejaculatory apodeme ; 4, surstylus, inner side. Scale 0.1 mm.

Distribution. Japan.

Remarks. This new species closely resembles European *melandryi* DE MEIJERE and *fennoniensis* SPENCER in the width of frons and the height of gena, but differs from them in the number of rows of orbital hairs, and the shape of palpus. The male genitalia of these three species, especially in the structure of distiphallus, are quite different from each other.

Etymology. The specific name *ozeana* refers to the type locality.

2. *Amauromyza (Amauromyza) clinopodii* SASAKAWA, n. sp. (Figs. 4-5)

Female. Head dark brown, but back of head and face blackish, and gena pale brown; parafrontalia weakly shining; antenna and palpus brownish black. Thorax brownish black; mesonotum densely grey dusted, mat, with lateral side subshiny brown; pleura subshiny. Abdomen blackish brown, T2-5 each with posterior margin linearly yellowish. Wing hyaline; calypter brownish white, with margin blackish brown and fringe brown; halter brown, with knob darkened. Legs brownish black.

Frons narrow, slightly wider than eye (12 : 10), almost parallel-sided; ocellar triangle with ventral apex slightly beyond level of first *ors*; parafrontalia scarcely projecting above eye margin in profile; *ors* two, *ori* three (sometimes 4 on one side); *oh* minute, reclinate, in a dense row; eye bare; gena one-fifth height of eye; *pm* five, rather long; third antennal segment small, rounded apically, as long as broad, minutely pilose; arista three-fourths as long as eye height, microscopically pubescent; palpus with two or three distinct setae on apex.

Mesonotum with 1+4 *dc*, first (presutural) *dc* half as long as the third, second (postsutural) *dc* slightly longer than the first; *acr* in four irregular rows. Wing: Costa extending to M_{1+2} , with sections 2-4 in proportion of 42 : 10 : 11; r-m slightly beyond middle of discal cell (8 : 6); ultimate section of M_{1+2} nine times as long as the penultimate; ultimate section of M_{3+4} about twice as long as the penultimate (10 : 22)

Length of body 2.5 mm, of wing 2.3 mm.

Male. Similar to female. Genitalia: Surstylus small, conical, bearing six brown stout setae and nine or ten slender setae; cercus only a little higher than one-fourth of epandrial height; hypandrium more or less circular, nearly two-fifths as long as phallapodeme (650 μ m long); pregonite with two sensory hairs; phallic hood (including a distal process which is claw-like in lateral view) almost as long as phallapodeme; phallus about three-fifths length of phallapodeme, phallophore one-fourth as long as the whole length of the phallus, sclerites of basiphallus clearly unequal in width, distiphallus with tubules united with each other except for basal part and almost as long as phallophore; ejaculatory apodeme 280 μ m long and 250 μ m in greatest width, with bulb largely sclerotized, bowl-shaped; ejaculatory duct very thick. Length of body 2.4 mm, of wing 2.3 mm.

Holotype female, reared from larva collected on 15 May 1938, *Clinopodium chinense*, emerged on 4 June 1938, H. ISITANI; no locality written in label, but probably in Tokyo. Paratypes: one male and one female, same data as in holotype, but emerged 3 & 4 June 1938, ISITANI.

Distribution. Japan.

Host plant. *Clinopodium chinense grandiflorum* (MAXIM.) var. *parviflorum* HARA (Lamiaceae).

Remarks. This new species is closely allied to *A. plectranthi* (SASAKAWA) in the coloration, chaetation and venation, but the two species are distinctive in the specific structure of the distiphallus. Also, it is immediately distinguishable from European *morionella* (ZETTERSTEDT) and *leonuri* SPENCER, both leaf miners of the Lamiaceae, by the structures of phallus.

3. *Calycomyza polygonicola* SASAKAWA, n. sp.

Female. Head yellow; ocellar triangle, occiput, postgena and antenna brownish black; frontalia orangish; parafrontalia pale testaceous and shining, but brown from vertical angle to base of second *ors*; palpus dark brown. Thorax subshiny, brownish black, greyish dusted; posterior margin of humerus, notopleuron and

dorsocaudal corner of mesopleuron whitish yellow. Wing hyaline; veins yellow at base; calypter yellow, with fringe whitish yellow. Legs entirely brownish black. Abdomen shiny brownish black, sparsely pollinose; T6 with posterior margin yellow; ovipositor sheath glossy black.

Frons one and a half times width of eye, converging ventrally; parafrontalia slightly and parafacialia linearly projecting beyond eye in profile; *ors* two, reclinate; *ori* two (-1), incurved; *oh* in a sparse row, reclinate; gena one-third to one-fourth height of eye; third antennal segment small, round, minutely pilose; arista nearly twice as long as the whole length of the antenna, swollen on basal one-sixth, microscopically pubescent.

Mesonotum with 0+3 *dc*, first *dc* one-half length of the second; *acr* in four rows. Wing: Costa extending to M_{1+2} , with sections 2-4 in proportion of 225 : 8 : 5.5; r-m at or slightly beyond middle of discal cell; ultimate section of M_{1+2} seven and a half times as long as the penultimate; ultimate section of M_{3+4} about twice length of penultimate.

Length of body 1.3 mm, of wing 1.35 (holotype)-1.5 mm.

Male unknown.

Holotype female, from puparium on *Polygonum* sp. (Polygonaceae), Tokyo, emerged on 27 June 1938, H. ISITANI. Paratypes: one female, same data as for holotype; one female, same locality, emerged 5 July 1938.

Distribution. Japan.

Remarks. This species is similar to a leaf miner of the Asteraceae, *C. humeralis* (ROSER) and *solidaginis* (KALTENBACH) in the coloration of squamal fringe, but can be reliably separated from them by the round third antennal segment and small size. The yellow face of *polygonicola* is similar to that of *solidaginis*.

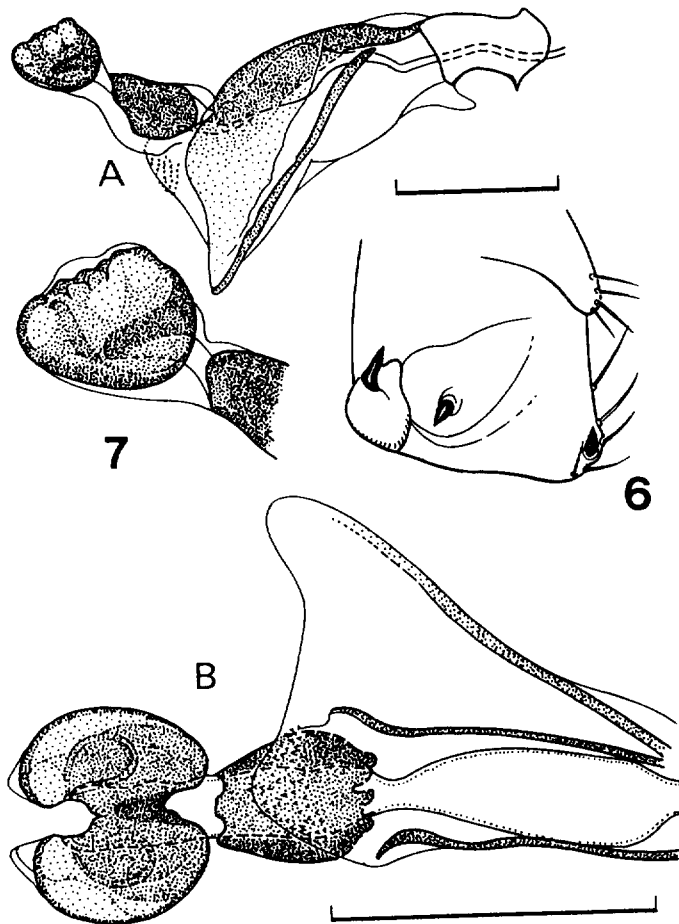
4. *Liriomyza subflavopicta* SASAKAWA, n. sp. (Figs. 6-7)

Male. Head yellow; ventral part of frontalia and antenna orangish; ocellar triangle with central part brown; brown part of occiput extending to dorsal postorbital but not reaching to vertical angles; both *vt* growing on yellow ground; arista pale brown; palpus yellow. Mesonotum subshiny black, slightly pollinose, with median posterior margin (from about midpoint between levels of the posteriormost *dc* and scutoscuteellar suture to the suture) concolorous with yellow scutellum and posterolateral corners broadly yellow; fourth *dc* at edge of black area, *ipa* at edge of yellow area; humerus and pleura yellow, the former with a small, pale brown spot before base of *h*; mesopleuron faintly brownish along ventral margin; brown triangles of sterno- and hypopleuron distinctly divided with yellow area; abdomen brownish black. Wing hyaline; calypter with margin and fringe pale brown; halter orangish; legs yellow, all tibiae and tarsi brownish yellow.

Frons nearly one and a half times width of eye, slightly converging ventrally; parafrontalia and parafacialia slightly projecting beyond eye in profile; *ors* two, the first reclinate, the second directed for- and inward; *ori* two, incurved, the second very short; *oh* in a sparse row; gena one-fourth height of eye; third antennal segment small, round, minutely pilose; arista shorter than eye height, swollen on basal one-fourth, minutely pubescent.

Mesonotum with 1+3 *dc*, four rows of *acr* (two posterior pairs incurved); *ipa* half length of *opa*. Wing: Costa extending to M_{1+2} , with sections 2-4 in proportion of 28 : 10 : 8; r-m beyond middle of discal cell which is small; ultimate section of M_{3+4} about thrice as long as the penultimate.

Genitalia: Epandrium with a pair of spines on ventral side (one at posteroventral corner, one at middle just above ventral margin); surstylus triangular, separated from epandrium, incurved, with a strong spine; hypandrium with side piece narrow, subequal to phallus in length; pregonite with one or two sensory setae; phallus a little longer than half of phallapodeme (620 μ m long); phallopore one-fourth the whole length of the phallus; sclerite of ventral process arising from basal part of basiphallus; basiphallus covered with spinulae on distal membranous part; distiphallus orbicular, separated from mesophallus, not entirely separated into two lobes in ventral view; ejaculatory apodeme 165 μ m long, 160 μ m in greatest width.



Figs. 6-7. Male genitalia of *Liriomyza subflavopicta* n. sp.
6, epandrium and surstylus, inner side ; 7, phallus.

Length of body 1.8 mm, of wing 1.9 mm.

Female unknown.

Holotype male, from larva mining in a leaf of an unknown species of the Apiaceae on 3 July 1949, Rankoshi-cho, Isoya-gun, Hokkaido, emerged on 21 July 1949, Y. NISHIJIMA; genitalia in a polyethylene tubule with glycerol and pinned with the specimen.

Distribution. Japan.

Remarks. This species is distinctive in the presence of yellow posterior area on the mesonotum. It is immediately distinguishable from a stem-miner on *Achillea*, *L. flavopicta* HENDEL, known from Europe, with which it has the same coloration of the head and thoracic pleura, and the same direction of the second upper fronto-orbital bristles, by the presence of inner post-alar bristles, and the shape and structure of meso- and distiphallus.

5. *Phytomyza brevituba* SASAKAWA, n. sp. (Figs. 8-11)

Male. Head yellow; ocellar triangle brownish black; occiput, dorsal halves of postorbit and postgena brownish black, both *vt* growing on brown vertical angle (*vti* at edge of dark area); parafrontalia pale brown

above level of *ors*-base except for inner yellow margin; lunule and ventral half of postgena testaceous; face dark brown; antenna blackish brown, arista and palpus brown. Thorax brownish black, densely whitish grey dusted; mesonotum with lateral side entirely yellow, *prs* and *opa* at edge of dark area; humerus with testaceous spot cephalad of *h*-base; scutellum dark brown, with anterior margin testaceous brown; mesopleural suture and dorsal one-fifth of mesopleuron yellow (*mspl* at edge of brown area). Wing hyaline; calypter yellow, with fringe pale yellowish brown. Legs brown, fore and mid knees yellow but hind one indistinct. Abdomen shiny brown, T2-5 with posterior margins linearly yellow.

Frons twice width of eye, slightly converging ventrally; parafrontalia not or slightly projecting above eye margin in profile; *ors* two, first *ors* subequal to *oh* in length or absent; *ori* two, the second one-half length of the first; *oh* in a sparse row; lunule lower than semicircle; eye bare; gena about one-fourth height of eye; third antennal segment a little longer than wide, as broad as or a little wider than genal height, rounded apically, with pile distinct (slightly longer than basal thickness of arista); arista subequal to eye height in length, microscopically pubescent.

Mesonotum with 1+3 *dc*, three to four irregular and sparse rows of *acr*, four (3-5) setulae in *ia*-row, *ipa* one-half to two-thirds length of *opa*. Wing: Second costal section three to three and a half times as long as the fourth.

Genitalia: Surstylus with eleven to fifteen setae on inner side, seven to nine setae on outer side; cercus with a ventral seta which is about two-thirds as long as height of cercus; hypandrium V-shaped, slightly less than half of phallapodeme (550-570 μ m long); pregonite with two setae, postgonite with a seta and two sensillae; phallus about two-thirds length of phallapodeme; basiphallus narrow, 250 μ m long, with eight spinules on membrane before distal end of left sclerite and a distinct spine at dorsal end of left narrow sclerite of ventral process; distiphallus largely membranous, with a pair of small and narrow sclerites on ventral base of tube; ejaculatory apodeme small, 60-70 μ m long, 35-50 μ m in greatest width.

Length of body 1.7 mm, of wing 1.9 (holotype)-2.0 mm.

Female. Similar to male, but frons almost parallel-sided, gena one-third of eye height; abdominal T2-5 with yellow posterior margins linear and indistinct, but T6 with yellow margin distinctly; length of wing 2.3 mm.

Holotype male, from larva 17 Apr. 1938 on *Angelica decursiva*, Tokyo, emerged on 11 May 1938, H. ISITANI; male genitalia in a polyethylene tubule with glycerol and pinned with the specimen. Paratypes one male and one female, emerged 8 May 1938, ISITANI.

Distribution. Japan.

Remarks. The larva is a leaf miner on *Angelica decursiva* (MIQ.) FR. et SAV. (Apiaceae). The fly is immediately distinguishable from three *Angelica*-miners by the coloration: *kibunensis* (SASAKAWA) with dark brown lateral sides of the mesonotum, and *arnaudi* SASAKAWA and *polycladae* SASAKAWA with dark brown frons.

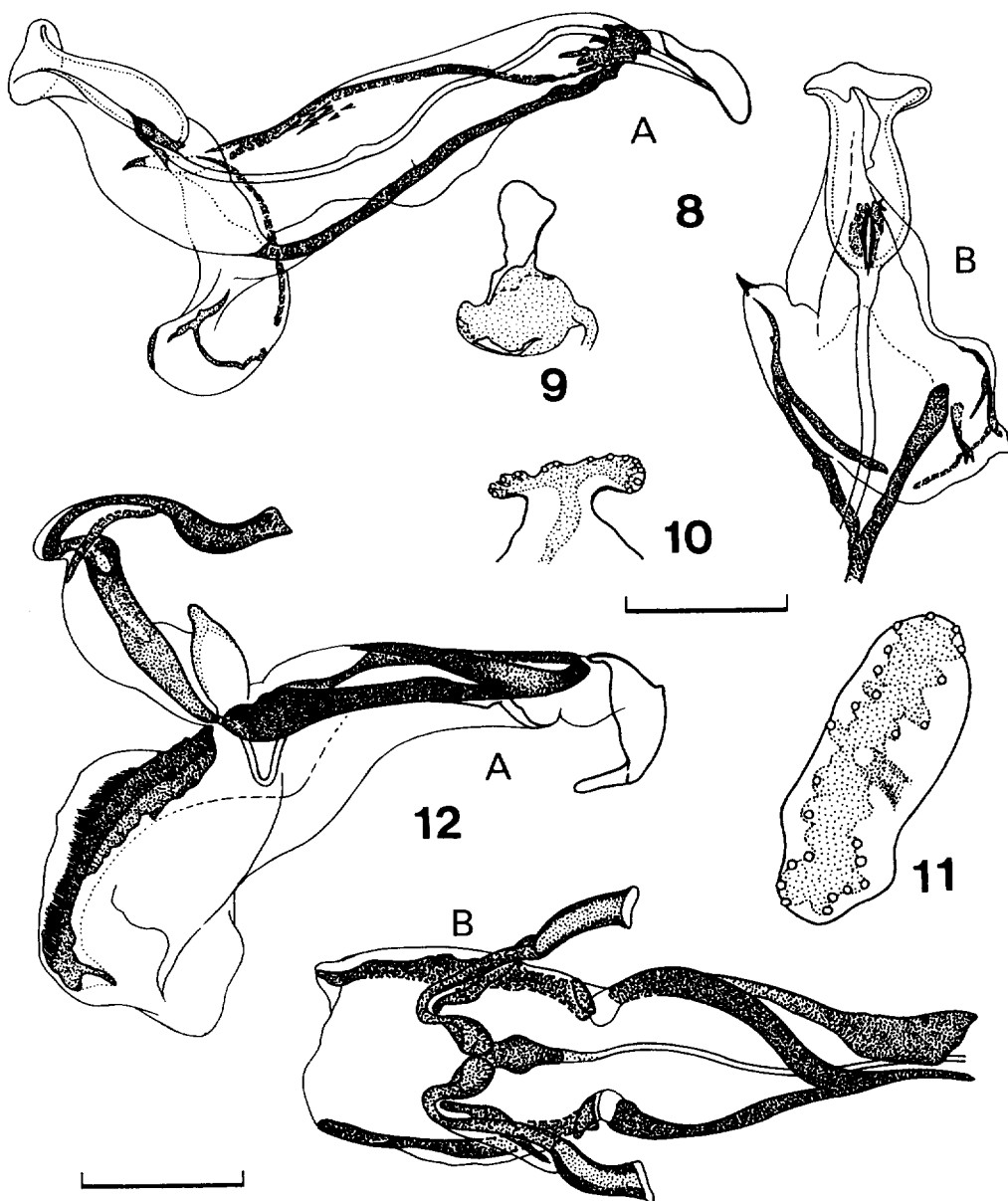
The coloration of this new species is similar to that of *P. tlingitica* GRIFFITHS, leaf miner on *Heracleum* in Alaska, but they are differentiable from each other in the venation and the presence or absence of spinules on the phallic membrane. The phallus indicates a close relationship with *P. spondylii* ROBINEAU-DESVOIDY and subsp. *heracleiphaga* SPENCER, but the distiphallus of *brevituba* is short and provided with a small sclerite at ventral base.

Puparium. Brown; 1.8 mm in length, 1.1 mm in broadest width; anterior spiracle small, with thirteen opening bulbs; posterior spiracle large, elliptical, with twenty-four or twenty-five bulbs.

Etymology. The name *brevituba* ('short trumpet') refers to the shape of the distiphallus.

6. *Phytomyza rubicola* SASAKAWA, n. sp. (Fig. 12)

Male & female. Head brown, but gena and postgena paler, ocellar triangle and two basal antennal segments darkened; occiput, third antennal segment and palpus blackish; thorax brownish black; mesonotum weakly



Figs. 8-12. *Phytomyza brevituba* n. sp. (8-11) and *Phytomyza rubicola* n. sp. (12).

8 & 12, phallus; 9, ejaculatory apodeme; 10, anterior spiracle; 11, posterior spiracle.

shining, sparsely pollinose, with lateral side more or less pale; abdomen subshiny brown to dark brown, sparsely pollinose, T1 and lateral sides of T2 pale brown. Wing hyaline, veins yellow at base; calypter yellow, fringe pale brown; legs brownish black, all knees indistinctly yellowish.

Frons distinctly wider than long, twice width of eye, converging ventrally; parafrontalia not projecting above eye in profile; *ors* two, first *ors* slightly shorter than the second or rarely two-thirds length of the second; *ori* two, the second very short; *oh* four or five, in a row; lunule semicircular; eye bare; gena usually one-fourth ($\sim 1/6$) height of eye; *pm* three or four; third antennal segment as long as or a little longer than

broad, rounded apically, minutely pilose; arista slightly shorter than eye height, minutely pubescent.

Mesonotum with 1+3 *dc*, four rows of *acr*, one or two postsutural *ia*-setulae; humerus with three to five setulae in addition to *h*; mesopleuron with two or three dorsally directed setulae. Wing: Costal sections 2-4 in proportion of 26 : 9 : 11.

Male genitalia: Surstylus with seven or eight long setae on inner side; cercus with a long ventral seta which is half height of the cercus in length; hypandrium rounded at base, two-fifths length of phallapodeme (675 μ m long); pregonite with two setae; basiphallus slightly shorter than hypandrium, right sclerite inverted Y-shaped, accompanying by a pair of weakly sclerotized papillae at end, sclerites of ventral process brush-shaped, distiphallus with distal tubules recurved; ejaculatory apodeme 100 μ m in length and width, respectively.

Length of body 1.6 (holotype) - 1.7 mm in male, 1.8 mm in female; length of wing 1.7 (holotype) - 1.8 mm in male, 2.0 mm in female.

Holotype male, from larva May 1938 on *Rubus palmatus*, Tokyo, emerged on 12 July 1938, H. ISITANI. Paratypes: three males and one female, same host plant and locality as in holotype, emerged 6-8 July 1938, ISITANI.

Distribution. Japan.

Remarks. The larva is a leaf miner on *Rubus palmatus* THUNB. (Rosaceae). The adult is similar to the *Clematis*-miner, *esakii* SASAKAWA, in the coloration and structure of the ventral process of phallus, and to European *hendeli* HERING and *pulsatillae* HERING, both miners on *Anemone* spp., in the shape of tubules of distiphallus. However, in *rubicola*, the shape of right sclerite of the basiphallus and the presence of a pair of papillate processes on the dorsal side between basi- and distiphallus are specific.

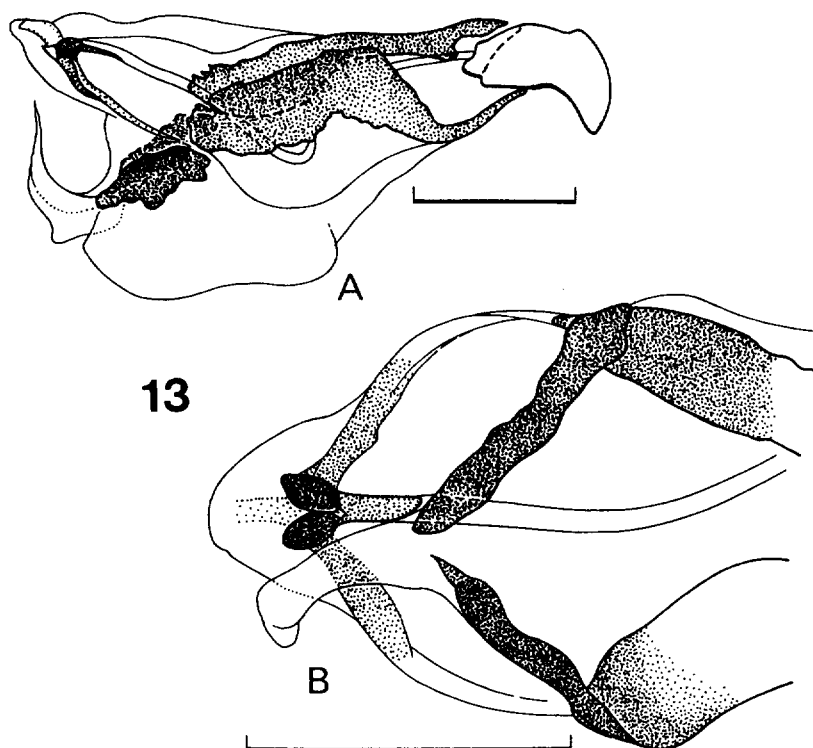


Fig. 13. Phallus of *Chromatomyia actinidiae* n. sp.

7. *Chromatomyia actinidia* SASAKAWA, n. sp. (Fig. 13)

Male. Head with frontalia testaceous yellow, parafrontalia and vertical angle dark brown; ocellar triangle and occiput black; face and lunule brownish black; gena testaceous; postgena with ventral margin pale brown; antenna dark brown, third segment blackish, arista brown; palpus black. Thorax black; mesonotum mat, densely whitish grey dusted, with lateral side brownish but dorsal corner of notopleuron testaceous; mesopleural suture and base of wing yellow; scutellum with anterolateral corners testaceous. Abdomen brownish black, T2-5 with posterior margins indistinctly yellowish. Wing hyaline, faintly tinged with yellowish brown along anterior margin; calypter yellow, with fringe pale brown; halter yellow. Legs black; basal part of fore tibia brownish; all tarsi slightly tinged with brown.

Frons broad, two and a half times width of eye, converging ventrally; parafrontalia with dorsal part slightly projecting above eye margin in profile; *ors* two, equal in length; *ori* one, accompanying by a setula; *oh* four or five in a row; lunule semicircular; eye bare; gena one-fifth height of eye; third antennal segment round, as long as wide, minutely pilose (arista broken distally).

Mesonotum with 1+3 *dc*, two irregular rows of *acr* (four rows just behind suture) ending at level of third *dc*, two irregular rows of six or seven postsutural *ia*-setulae, *ipa* one-third of *opa* in length. Wing: Second costal section about thrice as long as the fourth; m-m absent.

Genitalia: Surstylus slightly projected, bearing twelve or thirteen stout setae on inner side and thirteen to fifteen slender but long setae along outer dorsal margin; cercus with a long ventral seta which is nearly half as long as height of the cercus; hypandrium U-shaped, approximately one-third length of phallapodeme (750 μ m long); pregonite large, with two setae; postgonite of normal size, with one seta and three sensillae; phallus nearly half length of phallapodeme, basiphallus 200 μ m long and well sclerotized, distiphallus short and laterally with a pair of wing-like and weakly sclerotized supporting sclerites.

Length of body 1.9 mm, of wing 2.3 mm.

Female unknown.

Holotype male, from larva 24 May 1938 on *Actinidia arguta*, Tokyo, emerged on 5 June 1938, H. ISITANI; abdomen and genitalia in a polyethylene tubule with glycerol and pinned with the specimen.

Distribution. Japan.

Remarks. The larva is a leaf miner on *Actinidia arguta* (SIEB. et ZUCC.) PLANCH. et MIQUEL (Actinidiaceae). The male genitalia confirm the close relationship of this species with the *Lonicera*-mining species, but the structure of distiphallus of *actinidia* is unique. The new species differs externally from *suikazurae* SASAKAWA in the following points: the frontalia is pale and broad, the acrostichals are arranged in sparse rows, and the cross vein m-m is absent.

II. Unrecorded or Little-known Species from Japan

1. *Hexomyza paederiae* (SASAKAWA), n. comb.

Melanagromyza paederiae SASAKAWA, 1954, Trans. Shikoku ent. Soc. 4: 45.

The larva forms a twig-gall on *Paederia chinensis* (Rubiaceae). The essential characters of this species are as follows: costa extending distinctly to midpoint between apices of R_{4+5} and M_{1+2} , and indistinctly to apex of M_{1+2} ; basiphallus somewhat H-shaped, distiphallus with ventral membranous lobe shortly striated; hypandrium with basal apodeme curved downward almost rectangularly.

Specimens examined. 1 ♂ 1 ♀, Tanashi-nojyo, Tokyo, 20 May 1951, I. HATTORI.

Distribution. Japan.

2. *Melanagromyza aeneoventris* (FALLÉN)

This large, greenish-black species is recognized by having the projecting parafrontalia, with two closely adjoining *ors* and two widely-spaced *ori*, and both reclinate and proclinate *oh*, and white fringe on the calypter. Known as a stem-borer on *Carduus*, *Cirsium*, etc. (Asteraceae) in Europe.

Specimens examined. 1 ♀, Jyozankei, Hokkaido, 5 Aug. 1950, Y. NISHIJIMA; 1 ♂, Tadeshina, Nagano, 24 July 1947, A. TANAKA; 1 ♂ 1 ♀, Hirano, Kobe, 15 May 1948, A. TANAKA.

Distribution. Europe; Japan.

3. *Melanagromyza dettmeri* HERING

Melanagromyza dettmeri HERING, 1933, Konowia 12: 37.

This species is distinguishable from *aeneoventris* by the non-projecting parafrontalia in profile, and is known as a stem-borer on *Centaurea* in Europe (SPENCER, 1976).

Specimen examined. 1 ♀, Hatomachi-toge, Oze, 7 July 1951, H. HASEGAWA.

Distribution. Europe; Japan. New to Japan.

4. *Japanagromyza tokunagai* (SASAKAWA), n. comb.

Melanagromyza tokunagai SASAKAWA, 1953, Scient. Rep. Saikyo Univ., Agr. 4: 10.

This species is similar to Oriental *setigera* (MALLOCH) in the presence of a fore tibial bristle and the absence of the prescutellar bristles. The distiphallus is provided with a pair of stout spines on the lateral sides before end (in *setigera*, densely spinose).

The flies emerge from June to December, and the larvae mine the the flower-bud (ovary) or -stalk of the Orchidaceae: *Calanthe discolor* LINDL., *C. striata* R. BR., *C. aristulifera* REICHB., *C. izu-insularis* OHWI et SATOMI, and *Calanthe* spp., *Cymbidium goeringii* REICHB. (= *virescens* LINDL.), *C. kanran* MAKINO and *Cymbidium* spp., *Cypripedium japonicum* THUNB., *Habenaria radiata* (THUNB.) SPRENG., *Orchis graminifolia* (REICHB.) TANG et WANG. Widely distributed in Japan.

5. *Cerodontha (Dizygomyza) bimaculata* (MEIGEN)

Specimens examined. 2♂, Shimoda, Izu, 28 Mar. 1949, S. KATO and N. FUKUIHARA.

Distribution. Europe; Japan.

6. *Cerodontha (Dizygomyza) caricicola* (HERING)

Dizygomyza caricicola HERING, 1926, Z. Morph. Ökol. Tiere 5: 483.

Cerodontha (Dizygomyza) caricicola: GRIFFITHS, 1964, Ent. Medd. 32: 399.

Closely resembling *bimaculata*, with the following points of difference: parafrontalia and ocellar triangle mat, the former whitish-grey dusted; *oh* in a sparse row; *prsc* distinct (about one-third length of the fourth *dc*); wing length 2.1-2.4 mm in male; epandrium without posteroventral protuberance; surstylus with nine or ten spines in two rows; distiphallus with tubules very long and curved twice.

Specimens examined. 2♂, Nagayama, Hokkaido, on *Carex* sp., 11 & 15 July 1947, Y. NISHIJIMA.

Distribution. Europe; Japan. New to Japan.

7. *Cerodontha (Dizygomyza) suturalis* (HENDEL)

Specimen examined. 1♂, Kamitashiro, Oze, 17 July 1950, I. HATTORI.

Distribution. Europe; Japan.

8. *Liriomyza amoena* (MEIGEN)

Agromyza amoena MEIGEN, 1830, Syst. Besch. bekan. europ. zweifl. Insekt. 6 : 187.

The specimens examined is small, with the wing length 1.5-1.8 mm in male and 1.5-1.9 mm in female, and pale, with a narrow yellow border on the mesonotum before the scutoscuteellar suture and a pair of yellow patches at the posterolateral corners of mesonotum (extending anteriorly to the level of *ipa*).

Specimens examined. 1♂, from larva 27 Oct. 1937 on *Sambucus racemosa sieboldiana* HARA (Caprifoliaceae), Tokyo, emerged 2 May 1938, H. ISITANI ; 5♂2♀, from larvae on *Sambucus*, Tokyo, emerged on 8-9 Dec. 1938, ISITANI.

Distribution. Europe ; Japan.

9. *Liriomyza bryoniae* (KALTENBACH)

Agromyza bryoniae KALTENBACH, 1858, Verh. naturh. Ver. preuss. Rheinl. 15 : 158.

Liriomyza bryoniae : SASAKAWA, 1961, 394.

Liriomyza nipponallia SASAKAWA, 1961, 402. n. syn.

This leaf miner is common in the eggplant field. Also, the specimens bred from the leaf miners on the cultivated great burdock, *Arctium lappa* L., clearly represent *bryoniae*.

L. nipponallia was described by a female as a leaf miner of welsh onion, *Allium fistulosum* L., in Hokkaido. However, the genitalia of male fly reared from the same host plant and type locality by Dr. NISHIJIMA confirm that *nipponallia* is synonymous with *bryoniae*.

Specimens examined. 1♂1♀, from larvae on *Allium fistulosum*, Kotoni, Sapporo, emerged 1-4 July 1947, Y. NISHIJIMA ; 2♂1♀, from larvae 3 May 1952 on *Arctium lappa*, Mizutani-mura, Saitama Pref., emerged on 19-26 May 1952, S. KATO & N. FUKUHARA.

Distribution. Europe, Egypt ; Ukraine, Caucasus ; Japan.

10. *Liriomyza pseudopygmina* (HERING)

Dizygomyza (*Poemyza*) *pseudopygmina* HERING, 1933, Konowia 12 : 33.

The correct generic position of this species, synonyms and the larval mining habits were given by SPENCER (1976, 1990).

The species is characteristic in having the scutellum black, and the upper fronto-orbital bristle only one and reclinate. The female specimens examined are pale and large, that is, the head including antenna and palpus is orangish yellow, but the dark area of vertical angle is extended ventrally to the level of the upper fronto-orbital bristle, and the wing is 2.2 mm in length. The larva has been known as a polyphagous leaf miner of the Brassicaceae and Ranunculaceae in Europe.

Specimens examined. 2♀, Hokkaido Agr. Exp. Stat., Kotoni, Sapporo, 25 May 1951, S. KATO & I. HATTORI.

Distribution. Europe ; Japan. New to Japan.

11. *Phytoliriomyza arctica* (LUNDBECK)

Agromyza arctica LUNDBECK, 1900, Vidensk. Meddr dansk naturb. Foren. 5 : 304.

This is the second species of the genus from Japan. The distinctive character of the species is the distiphallus with a pair of long, membranous and multiple-coiled tubules.

A male specimen examined is very small, with the wing only 1.2 mm in length ; the epandrium is provided with one or two spines at each inner posteroventral corner, as seen commonly in the species of the genus *Liriomyza*.

Specimen examined. 1 ♂, Koza beach, Sagami, 29 Oct. 1950, H. HASEGAWA.

Distribution. Europe, Nepal, Japan ; Ceylon, Taiwan ; North America ; Brazil, Chile. New to Japan.

12. *Phytomyza artemisivora* SPENCER

Phytomyza artemisivora SPENCER, 1971, Entomologist's Gaz. 22 : 179.

This is a leaf miner on *Artemisia vulgaris* (Asteraceae) in Europe. The specimens examined show wide variations in the wing length, that is, 1.5-2.3 mm in male and 2.5-2.6 mm in female, and in length of the second costal section : three and a third to four times (rarely three) as long as the fourth.

Specimens examined. 2♂1♀, from larvae 15 May 1938 on *Chrysanthemum morifolium* RAMAT. var. *sinense* MAKINO, Nishigahara, Tokyo, emerged 3 June 1938, H. ISITANI ; 4♂3♀, from larvae 20 May 1937, on *Chrysanthemum*, Tokyo, emerged 20-26 Oct. 1937, ISITANI.

Distribution. Europe ; Japan. New to Japan.

13. *Phytomyza continua* HENDEL

Phytomyza affinis continua HENDEL, 1920, Arch. Naturgesch. A 84 : 158.

This is one of the largest species with the wing length from 3.0 mm in male to 5.0 mm in female, and the larva is the leaf (midrib) miner on *Cirsium* and *Carduus* spp. (Asteraceae). It is distinct in the coloration : the first and second segments of antenna are yellow to pale brown, and the mesonotum including lateral sides and pleura are largely whitish-grey dusted black ; the second section of costa is three and one-fifth times as long as the fourth in male, and three and one-third to four and one-third times in the female.

Specimens examined. 1♀, from larva 7 Nov. 1937 on *Cirsium japonicum* DC., Tokyo, emerged 15 Apr. 1938, H. ISITANI ; 1♂, Manazuru, Kanagawa Pref., 1 Nov. 1949, N. FUKUHARA ; 2♀, Mt. Hikosan, Fukuoka Pref., 23 May 1950, N. FUKUHARA.

Distribution. Europe ; Kamchatka, Japan. New to Japan.

Remarks. The number of the lower fronto-orbital bristles is usually three (*not* two), but variable from two to six (the lowest one about half length of the uppermost).

Posterior spiracles of the puparium are situated on an angular and broad projection, and each with twenty-two to twenty-six opening bulbs.

14. *Chromatomyia scolopendrii* (GOUREAU)

Phytomyza scolopendrii GOUREAU, 1851, Annls Soc. ent. Fr. 9 : 139.

This species is known as the leaf miners on *Polypodium* (Polypodiaceae) and *Asplenium* and *Phyllitis* spp. (Aspleniaceae) in Europe. The coloration of adult is similar to that of the species of the genus *Liriomyza*. The male genitalia are characteristic in the structures of phallus : long and curved sclerites of ventral process, long and slender supporting sclerites on ventral base of the distiphallus and minute rodlike ejaculatory apodeme (38 µm in length).

Japanese specimen is very pale, that is, all the antennal segments are entirely yellow, thoracic pleura (except for two pale brown triangles on the sterno- and hypopleuron) and scutellum are yellow, and is small with the wing length 1.8 mm.

Specimen examined. 1♂, from larva mined linearly on *Polypodium* sp., Tokyo, emerged 9 July 1938, H. ISITANI.

Distribution. Europe ; Japan. New to Japan.

III. List of Agromyzidae Preserved in the Museum

The collection forming the basis of this paper consists of about 3,500 specimens of Agromyzidae from Japan, representing fourteen genera and seventy-five species listed below.

Special attention had been paid to collect the leaf and stem miners on the cultivated crops and vegetables, such as *Agromyza yanonis*, *Cerodontha denticornis* and *Chromatomyia nigra* on barley and wheat, *Agromyza oryzae* on rice, *Melanagromyza sojae* on soybean, *Tropicomyia theae* on tea, and polyphagous *Liriomyza bryoniae* and *trifolii*, and *Chromatomyia horticola*, by authorities of the Laboratory of Insect Systematics, Division of Entomology, in particular, the late Dr. Shizuo KATO, the late Mr. Hukunobu ISITANI and Mr. Narao FUKUHARA, in various localities. The flies of economic importance are, therefore, occupied about 78% of the total agromyzid collection. Much of these material had been determined correctly by earlier workers, but in some cases incorrectly. Also, it is composed of some material donated to the Museum by workers on the agromyzid or other leaf-mining flies, in particular, Dr. Yutaka NISHIJIMA (Hokkaido University) and the late Dr. Tokuichi SHIRAKI, Messrs. Kenji KOIZUMI (Okayama University) and Akeo IWASAKI (Kitami Agricultural Experiment Station).

Subfamily Agromyzinae

1. *Hexomyza paederiae* (SASAKAWA) ヘクソカズラクキモグリバエ (新称)
2. *Melanagromyza aeneoventris* (FALLÉN) アザミクキモグリバエ (新称)
3. *Melanagromyza deltmeri* HERING ヤグルマギクキモグリバエ (新称)
4. *Melanagromyza dolichostigma* DE MEIJERE ミナミダイズクキモグリバエ (新称)
5. *Melanagromyza koizumii* KATO ダイズメモグリバエ
6. *Melanagromyza metallica* (THOMSON) センダングサミモグリバエ (新称)
7. *Melanagromyza pubescens* HENDEL
8. *Melanagromyza shirakii* SASAKAWA シラキハモグリバエ (新称)
9. *Melanagromyza sojae* (ZEHNTER) ダイズクキモグリバエ
10. *Tropicomyia flacourtiae* (SÉGUY) イイギリハモグリバエ (新称)
11. *Tropicomyia styracicola* (SASAKAWA) エゴノキハモグリバエ
12. *Tropicomyia theae* (COTES) チャノハモグリバエ
13. *Ophiomyia conspicua* (SPENCER) メナモミクキモグリバエ (新称)
14. *Ophiomyia lappivora* (KOIZUMI) ゴボウネモグリバエ
15. *Ophiomyia maura* (MEIGEN) キクスジハモグリバエ (改称)
16. *Ophiomyia ozeana* SASAKAWA, n. sp.
17. *Ophiomyia phaseoli* (TRYON) インゲンモグリバエ
18. *Ophiomyia puerariivora* SASAKAWA クズサヤモグリバエ (新称)
19. *Ophiomyia pulicaria* (MEIGEN) タンポポハモグリバエ
20. *Ophiomyia shibatsujii* (KATO) ダイズネモグリバエ
21. *Japanagromyza quercus* (SASAKAWA) アラカシハモグリバエ
22. *Japanagromyza tokunagai* (SASAKAWA) ランミモグリバエ (改称)
23. *Japanagromyza tristella* (THOMSON) ダイズクロハモグリバエ
24. *Agromyza albipennis* MEIGEN ムギクロハモグリバエ
25. *Agromyza morivora* SASAKAWA et FUKUHARA クワハモグリバエ
26. *Agromyza oryzae* (MUNAKATA) イネハモグリバエ
27. *Agromyza phragmitidis* HENDEL アシハモグリバエ
28. *Agromyza yanonis* (MATSUMURA) ヤノハモグリバエ

Subfamily Phytomyzinae

29. *Nemorimyza posticata* (MEIGEN) キククロハモグリバエ (改称)
30. *Amauromyza (Amauromyza) clinopodii* SASAKAWA, n. sp. クルマバナハモグリバエ (新称)

31. *Calycomyza artemisiae* (KALTENBACH) ヨモギフクロモグリバエ (改称)
32. *Calycomyza humeralis* (ROSER) ヨメナシロハモグリバエ
33. *Calycomyza polygonicola* SASAKAWA, n. sp. タデハモグリバエ (新称)
34. *Cerodontha (Cerodontha) denticornis* (PANZER) ムギキイロハモグリバエ
35. *Cerodontha (Dizygomyza) bimaculata* (MEIGEN) スズメノヤリハモグリバエ (新称)
36. *Cerodontha (Dizygomyza) caricicola* (HERING) スゲオオモグリバエ (新称)
37. *Cerodontha (Dizygomyza) iraeos* (ROBINEAU-DESVOIDY) アヤメハモグリバエ
38. *Cerodontha (Dizygomyza) morosa* (MEIGEN) スゲハモグリバエ (新称)
39. *Cerodontha (Dizygomyza) suturalis* (HENDEL) スゲキベリモグリバエ (新称)
40. *Cerodontha (Poemyza) incisa* (MEIGEN) オカザキハモグリバエ (新称)
41. *Cerodontha (Poemyza) lateralis* (MACQUART) ムギキベリハモグリバエ
42. *Liriomyza amoena* (MEIGEN) ニワトコハモグリバエ (新称)
43. *Liriomyza asterivora* SASAKAWA ヨメナスジハモグリバエ
44. *Liriomyza brassicae* (RILEY) アブラナハモグリバエ
45. *Liriomyza bryoniae* (KALTENBACH) ナスハモグリバエ
46. *Liriomyza chinensis* (KATO) ネギハモグリバエ
47. *Liriomyza decempunctata* SASAKAWA ヤブランハモグリバエ (新称)
48. *Liriomyza dianthicola* (VENTURI) カーネーションハモグリバエ
49. *Liriomyza hemerocallis* IWASAKI キスゲミモグリバエ
50. *Liriomyza katoi* SASAKAWA カトウハモグリバエ
51. *Liriomyza pseudopygmina* (HERING) カキネガラシハモグリバエ (新称)
52. *Liriomyza subflavopicta* SASAKAWA, n. sp. セリハモグリバエ (新称)
53. *Liriomyza trifolii* (BURGESS) マメハモグリバエ
54. *Phytoliriomyza arctica* (LUNDBECH) ノゲシクキモグリバエ (新称)
55. *Phytomyza actaeae* HENDEL ルイヨウショウマハモグリバエ (新称)
56. *Phytomyza araliae* SASAKAWA タラノキハモグリバエ (新称)
57. *Phytomyza artemisivora* SPENCER ヨモギスジモグリバエ (新称)
58. *Phytomyza brevituba* SASAKAWA, n. sp. ノダケハモグリバエ (新称)
59. *Phytomyza continua* HENDEL アザミハモグリバエ (新称)
60. *Phytomyza eupatorii* HENDEL ヒヨドリバナハモグリバエ
61. *Phytomyza fallaciosa* BRISCHKE キンボウゲハモグリバエ (新称)
62. *Phytomyza japonica* SASAKAWA ニッポンキクハモグリバエ
63. *Phytomyza jucunda* FROST et SASAKAWA イヌツゲハモグリバエ (新称)
64. *Phytomyza kibunensis* SASAKAWA シシウドスジハモグリバエ (新称)
65. *Phytomyza minuscula* GOUREAU カラマツスジハモグリバエ
66. *Phytomyza paniculatae* SASAKAWA センニンソウハモグリバエ
67. *Phytomyza plantaginis* ROBINEAU-DESVOIDY オオバコハモグリバエ
68. *Phytomyza ranunculi* SCHRANK キツネノボタンハモグリバエ
69. *Phytomyza rubicola* SASAKAWA, n. sp. キイチゴハモグリバエ (新称)
70. *Chromatomyia actinidiae* SASAKAWA, n. sp. サルナシハモグリバエ (新称)
71. *Chromatomyia fuscula* (ZETTERSTEDT) キタムギハモグリバエ
72. *Chromatomyia horticola* (GOUREAU) ナモグリバエ
73. *Chromatomyia nigra* (MEIGEN) ムギスジハモグリバエ
74. *Chromatomyia scolopendrii* (GOUREAU) シダハモグリバエ (新称)
75. *Chromatomyia suikazurae* SASAKAWA スイカズラハモグリバエ

Acknowledgements

We wish to express our sincere thanks to the staffs of the Insect Museum concerned with the collection of leaf miners in the past sixty years. We are most grateful to Mr. Narao FUKUHARA and Ms. Machiko IZAWA for their assistance during the preparation of this paper.

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農業環境技術研究所昆虫標本館所蔵のハモグリバエ科¹ (7新種の記載を含む)

笹川満廣²・松村 雄³

摘 要

農作物をはじめ、いろいろな植物の葉や茎、根などの組織内を幼虫がもぐって食害するハモグリバエ科は、わが国から約200種(世界から約1,200種)が知られている。当標本館には、故石谷福信氏(農林省農事試験場)によるムギ類・野菜・その他の植物の潜葉種、故加藤静夫博士(農業技術研究所)によるイネ・マメ類の潜葉(または潜茎)種のほか、国内の農業試験場等からの同定依頼標本、故素木得一博士採集の琉球産標本など、約3,500点のハモグリバエが所蔵されている。そのほかに、野外で捕虫網によって捕獲された日本各地の多数の未整理標本も保管されている。

寄主植物の判明している飼育種について、現代の分類体系に則した学名による整理、未同定標本の種名確定などを行ったところ、14属75種に分類することができた。そのうち、新種として *Amauromyza clinopodii* (寄主植物: クチビルバナ科クルマバナ)、*Calycomyza polygonicola* (タデ科の一種)、*Liriomyza subflavopicta* (セリ科の一種)、*Phytomyza brevituba* (セリ科ノダケ)、*Phytomyza rubicola* (バラ科キイチゴ)、*Chromatomyia actinidiae* (マタタビ科サルナシ)、と寄主不明の *Ophiomyia ozeana* の7種を記載した。ついで、*Chromatomyia scolopendrii* (GOUREAU) (シダの一種)、*Phytomyza continua* HENDEL (アザミ類)、*P. artemisivora* SPENCER (キク科)、*Cerodontha caricicola* (HERING) (スゲの一種) など、日本未記録の7種を同定した。さらに、ナスハモグリバエはゴボウの葉にももぐり(新寄主)、ニッポンネギハモグリバエ *Liriomyza nipponallia* は本種のシノニムであることや、ランミモグリバエ(シュンランキモグリバエの改称)とヘクソカズラの茎にもぐる種の属名変更を記録した。

¹本研究は、平成七年度に笹川が流動研究員として松村と共同研究をした結果をまとめたものである。

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